U.S. Department
of Transportation

**Research and
Special Programs
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

MAR 2 2005

DOT-E 10480
(SIXTH REVISION)

EXPIRATION DATE: January 31, 2007

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Air Products & Chemical Inc.
Allentown, Pennsylvania

2. PURPOSE AND LIMITATIONS:

a. This exemption authorizes the manufacture, mark, sale and use of non-DOT specification vacuum insulated portable tanks for the transportation in commerce of helium, refrigerated liquid. This exemption provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.

b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 172.203(a), 173.318, 173.320, 176.30, 176.76(h) in that a non-DOT specification vacuum insulated portable tank is not authorized, except as specified herein.

5. BASIS: This exemption is based on the application of Air Products and Chemicals, Inc. dated February 11, 2005, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101): MAR 2 2005

| Proper Shipping Name/ Hazardous Material Description | Hazard Class/ Division | Identification Number | Packing Group |
|---|---|---|---|
| Helium, refrigerated liquid (*cryogenic liquid*) | 2.2 | UN1963 | N/A |

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a vacuum insulated non-DOT specification portable tank designed and constructed in accordance with Section VIII, Division I of the ASME Code and subparagraph (1) of this paragraph. The portable tank is enclosed in an ISO type frame and is vacuum insulated with a cold mass shield. Design pressure is 190 PSIG for the internal tank and the outer jacket is designed to withstand a collapse pressure of 30 PSIG. Design temperature is -452°F. Water capacity is 3,476 gallons, nominal for the inner tank. Tank material is SA 240 Type 304N stainless steel for the inner tank, 300 series stainless steel for the internal piping, and SA 36 or SA 516-70 carbon steel for the outer jacket.

(1) Each portable tank must conform to Gardner Cryogenics assembly drawings numbers: 13747B dated July 28, 1989, 13759B dated July 24, 1989, 13766B dated July 24, 1989, 13771B dated August 18, 1989, 13772B dated August 18, 1989, 13813D dated August 16, 1989, 13984D dated January 23, 1990, 14035D dated February 12, 1990, 14037D dated February 23, 1990 (Final Assembly), 14050D dated January 31, 1990, and other reference drawings, calculations and technical specifications on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA), and with § 178.338 except as follows:

(i) Section 178.338-10 does not apply.

(ii) The portable tank need not conform with § 178.338-13(b) or (c). Lifting lugs, framework and any anchoring to the inner tank, the helium shield tank or the tank jacket must conform with § 178.338-13(a). Each portable tank design must be qualified in accordance with § 178.270-13(c).

(iii) Effective August 1, 2002, "DOT-E 10480" must replace the mark "MC 338".

b. TESTING - Each portable tank must be reinspected and retested once every five years in accordance with § 173.32(e) as prescribed for DOT Specification 51 portable tanks. The test pressure in the inner tank must be determined from the following formulas:

If there is no vacuum in the outer jacket during test:

$$P_T = 1.25 \times [P_d + H_s + 14.7]$$

If vacuum exists in the outer jacket during test:

$$P_T = 1.25 \times [P_d + H_s + 14.7] - 14.7$$

Where:

$P_T$ = Test pressure, psig
$P_d$ = Design pressure (maximum allowable working pressure), psig
$H_s$ = Static head of liquid in inner tank, psi

c. OPERATIONAL CONTROLS -

(1) Each portable tank must be plainly marked "DOT-E 10480" on both sides near the middle, in letters at least two (2) inches high on a contrasting background.

(2) Each portable tank must be prepared and shipped as required in § 173.318, as applicable for the lading.

(3) Shipments by cargo vessel must conform with the following:

(i) The package must conform to § 176.76(g). Portable tanks may be overstowed only if enclosed in ISO-type frames and otherwise suitably protected. In all situations, the portable tanks must be stowed such that they are readily accessible and can be monitored in accordance with the provisions of this exemption.

(ii) The legend "One-Way Travel Time _____ Hours" or "OWTT Hours" must be marked on the shipping paper and on the dangerous cargo manifest immediately after the container description. The OWTT is determined by the formula:

OWTT = MRHT - 24 hours.

(iii) A written record of the portable tank's pressure and ambient (outside) temperature at the following times must be prepared for each shipment.

(A) At the start of each trip;

(B) Immediately before and after any manual venting;

(C) At least every 24 hours; and

(D) At the destination point.

(iv) Any lading road relief valve set at a pressure lower than that prescribed for the (safety) pressure relief valve must be closed during transportation by cargo vessel unless the rated holding time was determined based on the setting of the road relief valve.

(4) No person may transport or offer for transportation a charged portable tank unless the pressure of the lading is equal to or less than that used to determine the marked rated holding time and the OWTT is equal to or greater than the expected elapsed time between the start and termination of travel.

(5) The actual holding time for each tank must be determined after each shipment. If it is determined that the actual holding time is less than 90 percent of the MRHT of the tank, the tank may not be refilled until it is restored to its MRHT or the tank is remarked with the holding time determined by this examination.

(6) The portable tank must be secured to the motor vehicle in accordance with the requirements of 49 CFR 393.100 through 393.106. Additionally, the motor vehicle's bumper must be located at least 6 inches to the rear of any tank component used for loading or unloading that may contain lading during transit.

8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this exemption for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this exemption.

b. A person who is not a holder of this exemption, but receives a package covered by this exemption, may reoffer it for transportation provided no modifications or changes are made to the package and it is offered for transportation in conformance with this exemption and the HMR.

c. A current copy of this exemption must be maintained at each facility where the package is offered or reoffered for transportation.

d. Each packaging manufactured under the authority of this exemption must be either (1) marked with the name of the manufacturer and location (city and state) of the facility at which it is manufactured or (2) marked with a registration symbol designated by the Office of Hazardous Materials Exemptions and Approvals for a specific manufacturing facility.

e. A current copy of this exemption must be maintained at each facility where the package is manufactured under this exemption. It must be made available to a DOT representative upon request.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle and cargo vessel.

10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each cargo vessel or motor vehicle used to transport packages covered by this exemption.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:

- All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.
- Persons operating under the terms of this exemption must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.

- Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this exemption are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous materials incident reports. In addition, the grantee(s) of this exemption must notify the Associate Administrator for Hazardous Materials Safety -- OHMEA, in writing, of any incident involving a package, shipment or operation conducted under terms of this exemption.

Issued in Washington, D.C.:

Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

MAR 2 2005
DATE

DN

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, U.S. Department of Transportation, Washington, D.C. 20590. Attention: Exemptions Branch.

Copies of this exemption may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/exemptions Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

PO: AM